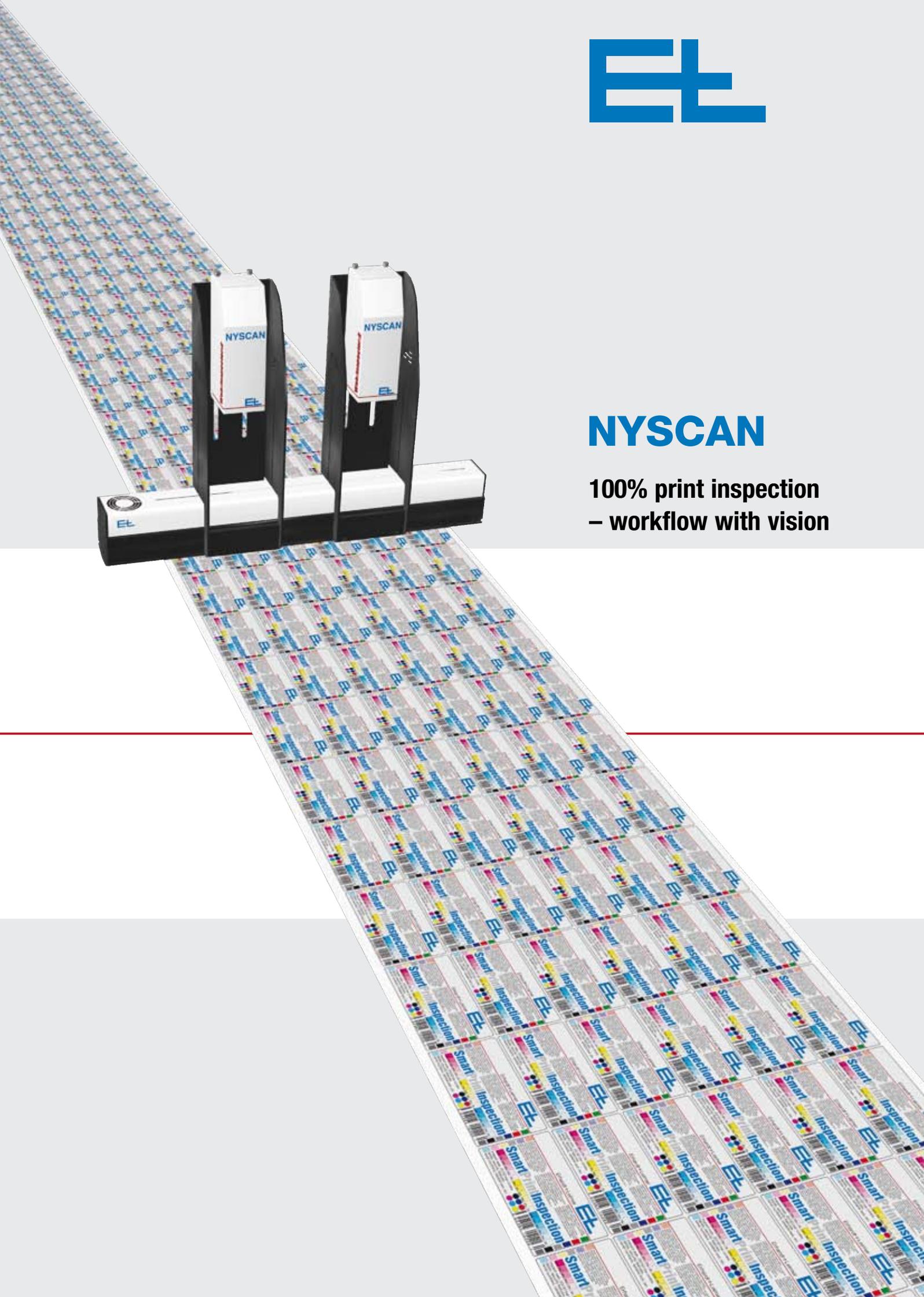


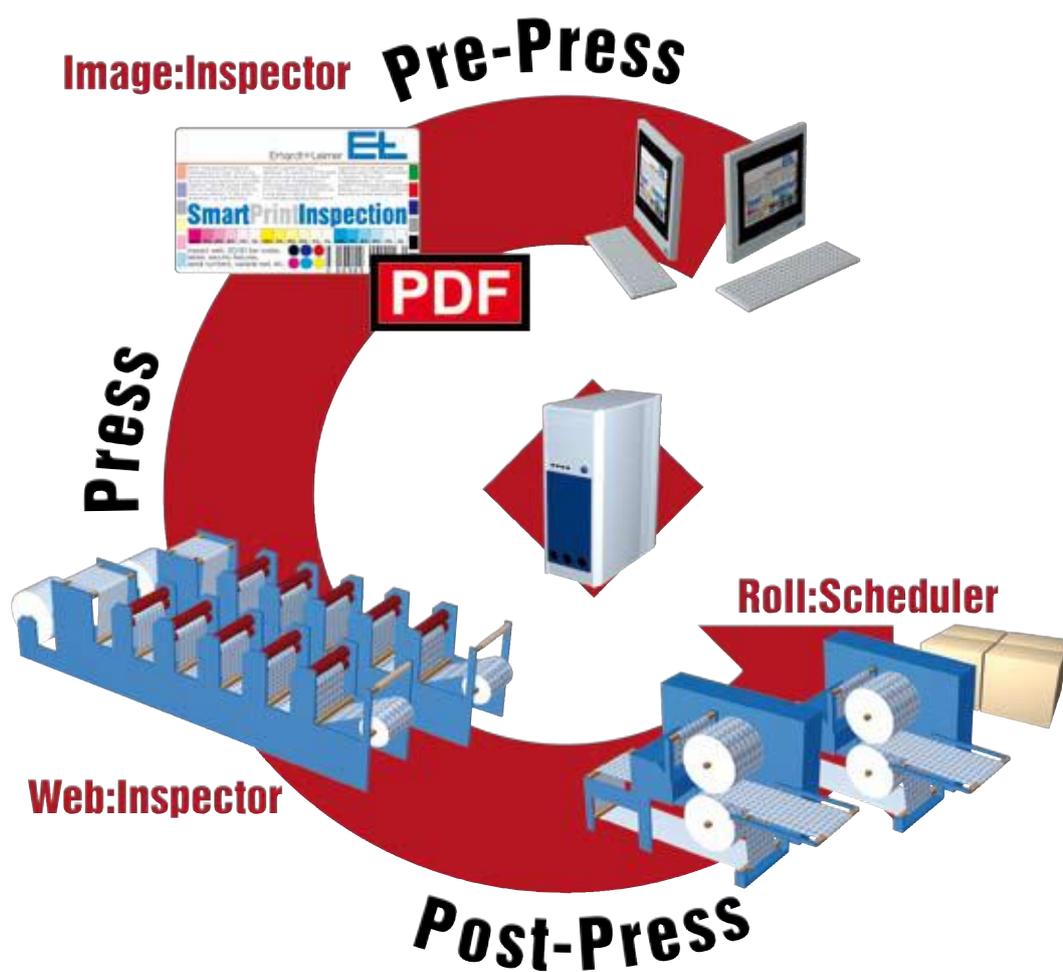


NYSCAN

**100% print inspection
– workflow with vision**



Erhardt+Leimer NYSCAN product portfolio



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NYSCAN – 100% print inspection

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Workflow with NYSCAN

Consistent quality management from pre-press to finishing

The premium variant from Erhardt+Leimer for the inspection of print production on all printing presses and finishing machines. Consistent monitoring and documentation from prepress through the printing process to the finishing of the individual product.

Printers are increasingly confronted with requirements such as "zero defect deliveries" and "total quality control". E+L has developed the Workflow with NYSCAN concept to provide the necessary related tools. This concept involves the 100% inspection of the printing jobs from the customer PDF to the final finished roll.

Even right at the start of the printing process, the quality of the production is compared with

the digital proof from the customer using the NYSCAN Image:Inspector. Deviations in the content or the layout of the print image are reliably detected and waste production can be prevented.

After approval of the press proof, the print production is continuously monitored for changes and printing defects.

The NYSCAN Web:Inspector system used for this purpose continuously compares the print image with the reference image. The complete width and length of the web is acquired during the entire production process and checked for printing defects and material defects. The defect sizes to be detected are defined using individually adjustable waste thresholds. Defects that occur are documented in the roll report and can be retraced at any time.

This roll report is also used to automatically control finishing machines. The NYSCAN Roll:Scheduler system utilizes the roll report to

accurately position the defective printed areas on the slitting table in a finishing machine. During this process both individual defects and larger areas of waste can be specifically ejected.

Of course, all systems in the NYSCAN product family can also be used independently. The Image:Inspector PDF comparison is also provided with a scanner as an offline variant and the 100% inspection system, Web:Inspector, can be used for almost all printing presses and finishing machines.

The rest of this brochure covers the individual NYSCAN products in detail and describes the possible applications and functions in each case.



Prepress/PDF:
Print image comparison with Image:Inspector

Printing press:
Print image inspection and preparation of the "Roll-Map" using Web:Inspector

Finishing:
defect positioning using Roll:Scheduler

Image:Inspector – PDF comparison

Reliability of the production process referenced to the digital approval

Using the Image:Inspector the press proof from a production process is checked against the customer's artwork (predominantly a PDF file). Any deviation in the text or character area is detected and can be corrected in good time. The system can be integrated into a 100% inspection system NYSCAN Web:Inspector as a module or can be utilized as a standalone offline system with separate scanner.

Functions

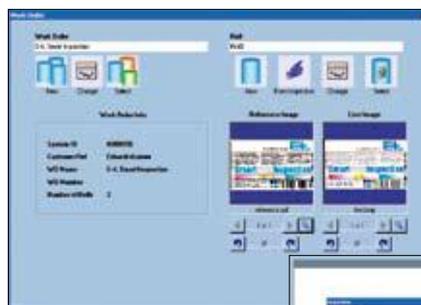
- + Inspection of the print production against PDF artwork
- + Text and content inspection even with very small fonts
- + Inline variant for direct inspection on printing presses and finishing machines
- + Direct access with a click in the Web:Inspector software (not necessary to open any additional software)
- + Feature for the separation of the individual colors for the adaptation of the PDF to the actual print colors
- + Application of PDF layers for die cutting contours
- + Documentation of all inspections including the settings selected
- + Reproducibility for repeat jobs
- + NYSCANsyscon network structure

Your advantages

- + Absolute certainty that the print production matches the customer's artwork
- + Simple inspection of "exotic" fonts and text
- + Immediate detection of defects from prepress
- + Verifiable using documentation from the inspections
- + Spot checks on the reference sample as offline variant

Work sequence

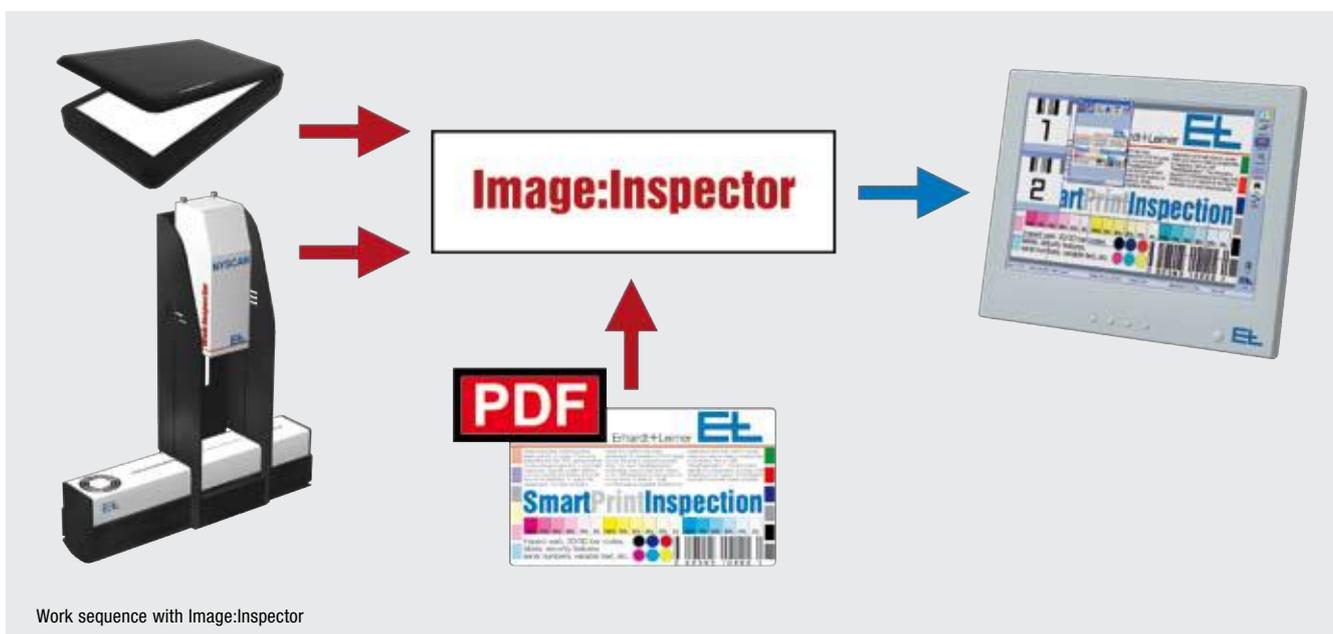
- + Load test image: is directly transferred from the NYSCAN inspection system or can be loaded using a scanner for offline application
- + Load reference image / PDF: can be imported via the network directly from prepress or manually via USB, CD or DVD medium
- + Define area to be inspected: definition of which areas are to be inspected and the parameters for the inspection
- + Start inspection
- + Analysis of the results of the inspection: variations detected are checked and the parameters adjusted if necessary
- + Validation of the defects: each defect must be evaluated and defined as "relevant" or "ignore"
- + Prepare an inspection report



Area of PDF selected - test image



Inspection area with parameters



Web:Inspector – single-camera system

The reliable and proven 100% inspection for narrow web and label printing

With the NYSCAN Web:Inspector product group, Erhardt+Leimer offers an extensive range of 100% inspection systems for a very wide range of requirements.

The single-camera system is predominantly used for narrow web applications and label printing processes. Due to the choice of color and grey scale cameras, each system can be designed to suit your specific requirements. The basis for Web:Inspector systems are the high-resolution array cameras. The very high line frequency of these cameras makes it possible to ensure reliable print image inspection even at web speeds > 300m/min.

TubeLight

The special, patent-applied, TubeLight lamp was explicitly developed for the inspection of highly reflective and embossed materials. As a result reflections and scattered light, as occur on the direct illumination of gold and silver foils, as well as embossed areas, can be eliminated. The result is interference-free, dependable inspection. Even holograms can be reliably inspected using TubeLight.



Web:Inspector inspection system with one camera



Web:Inspector installed on narrow web printing press



Web:Inspector with patented TubeLight illumination

Your advantages:

- + Reliable 100% inspection system accepted by the market
- + Very quick implementation of new jobs and repeat jobs
- + Certainty that reflective and embossed materials can be inspected
- + Guaranteed upward and downward compatibility
- + Worldwide service and sales network via the E+L subsidiaries

New: Web:Inspector LT

With the Web:Inspector LT, E+L offers a 100% inspection system for entry into print image inspection. Specially designed and developed for use in the narrow web sector, with the LT version E+L provides an entry-level model for the price-conscious user. The Web:Inspector LT supplements the successful NYSCAN product range that as a consequence offers a suitable solution for every application

Functions

- + 100% inspection using high-performance line scan camera
- + Can be used on printing presses or finishing machines
- + Continuous inspection of the entire width and length of the web
- + Color and grey scale cameras can be used
- + Special TubeLight illumination for reflective and embossed products
- + Digital roll reports for documentation of the defects detected and further processing on finishing machines
- + Size of the defects detected can be set individually
- + Defect output on the monitor and via acoustic / visual signal
- + Delta E output for color variations
- + Barcode modules for the inspection of static and dynamic barcodes
- + Distance measurement between freely definable points in the print image
- + Number detection for the inspection of sequential numbers
- + Modular design (upgrades and changes to the cameras can be made very easily)
- + Image:Inspector for PDF comparison optional
- + PDA interface
- + NYSCANsyscon network structure

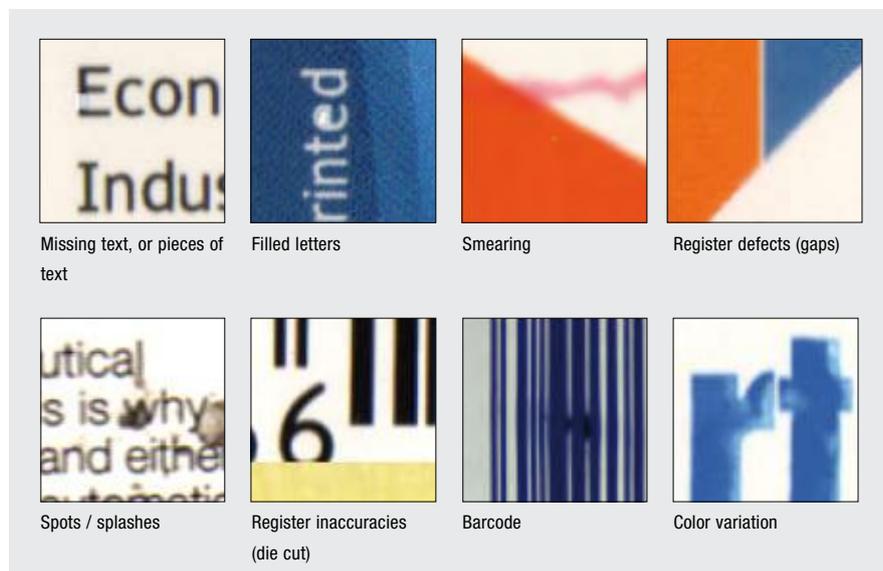


Main menu



Additional menu

Typical print defects, detected by NYSCAN



Web:Inspector – Multi-camera system

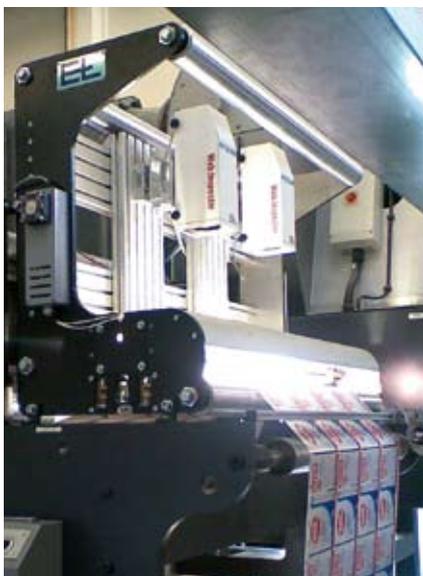
The innovative solution from E+L for wide web applications and requirements with very high camera resolutions

The NYSCAN Web:Inspector multi-camera system was specially developed for applications on wide web machines such as gravure and flexo printing presses, as well as finishing machines in flexible packaging. Based on the proven Web:Inspector software with integrated Pixel Registration, this system is able to cover web widths up to approx. 1800 mm (depending on the application).

Several cameras from the color and grey scale range in the NYSCAN product group, installed in parallel, are used here. As standard, 4096-pixel color line cameras are used. With a web width of 1200 mm this camera provides a resolution of up to 0.10 mm pixel width. As for the single-camera system, the material web is illuminated using the patent-applied lamp unit TubeLight. The major advantage of this illumination is the possibility of reproducing a heavily reflective substrate homogeneously and free of reflections.

In particular with aluminum-coated or vacuum-metallised materials, these reflections would otherwise result in false alarms during inspection.

With the TubeLight illumination, it is possible to avoid these reflections and the related false alarms.



Web:Inspector double-camera system

Perfect illumination for every web width

For the inspection of wide webs the new LED TubeLight is used. The web to be inspected is perfectly illuminated by the LED modules arranged over the whole length. The diffused light properties are completely preserved and make it possible to represent nearly all materials - without having to change the light source or the path of the web.

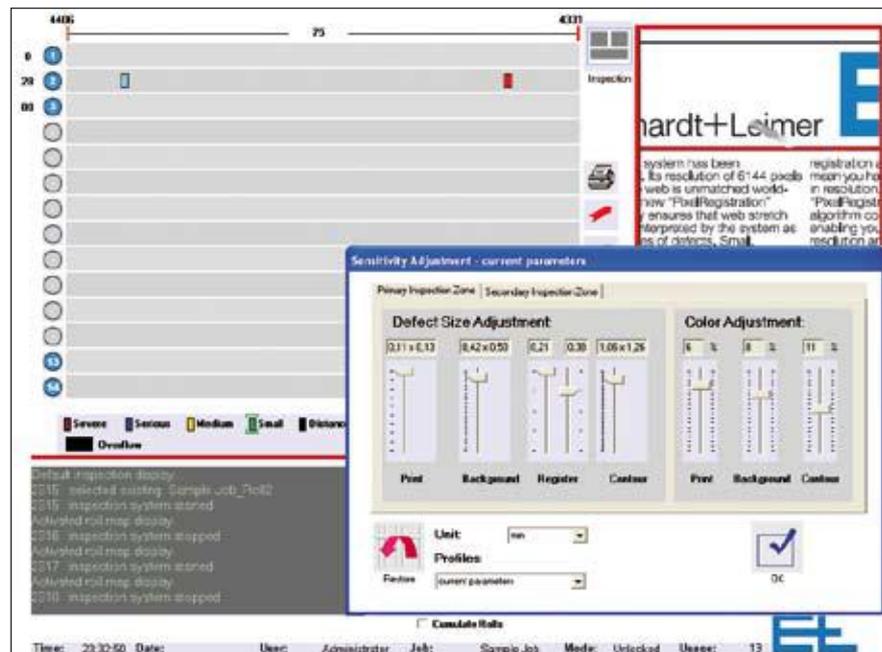
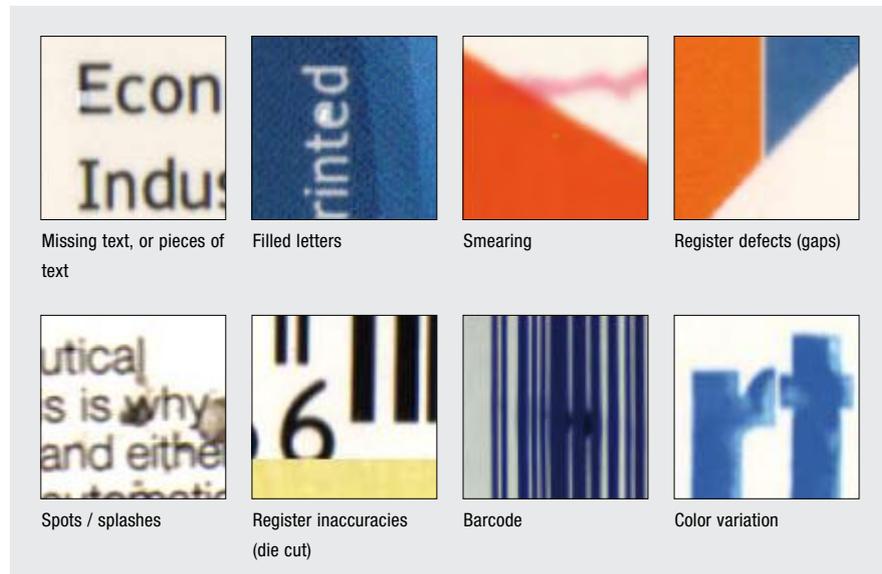
Functions

- + Multi-camera option for printed widths up to 1800 mm
- + 100% inspection using high-performance line cameras
- + Can be used on printing presses or finishing machines
- + Continuous inspection of the entire width and length of the web
- + Color and grey scale cameras can be used
- + Special TubeLight lamp for reflective, laminated and clad products
- + Digital roll reports for documentation of the defects detected and further processing on finishing machines
- + Size of the defects detected can be set individually
- + Defect output on the monitor and via acoustic / visual signal
- + Delta E output for color variations
- + Barcode modules for the inspection of barcodes
- + Distance measurement between freely definable points in the print image
- + Number detection for the inspection of sequential numbers
- + Modular design (upgrades and changes to the cameras can be made very easily)
- + Image:Inspector for PDF comparison optional
- + PDA interface
- + NYSCANsyscon network structure

Your advantages

- + Modular design for optimum adaptation to specific applications
- + Proven and reliable Web:Inspector software as the systems base
- + Prevention of false alarms due to reflections by the use of TubeLight
- + Guaranteed upward and downward compatibility
- + Worldwide service and sales network via the E+L subsidiaries

Typical print defects, detected by NYSCAN



Sensitivity setup menu

TubeLight

NYSCAN TubeLight - the ideal diffused light illumination

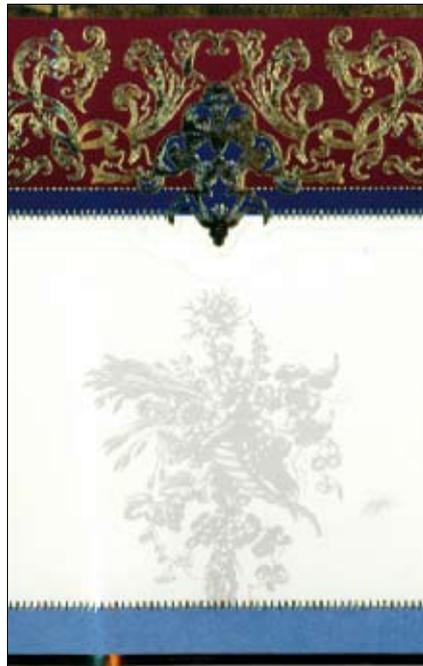
TubeLight is a new type of innovative lamp specially for difficult printing and web conditions.

The prerequisites for the detection of defects in hot foil and cold foil, in embossing, screen printing, metalized materials, holograms and the like are particularly difficult. For these applications, the new light source TubeLight is provided as standard for the NYSCAN 100% print inspection system. Interfering reflections do not occur with TubeLight, unlike other inspection systems.

Due to the homogeneous illumination of the web, even highly reflective materials such as gold and silver foils, aluminum webs and special effects can be displayed without interfering reflections or scattered light. As a result, reliable and productive inspection of the print pattern is possible.

The LED TubeLight was developed specially for applications in the wide web sector. With web widths up to 1800 mm, it is suitable for all flexo, gravure and offset printing presses and therefore always guarantees perfect illumination.

Conventional process



TubeLight



Options

Distance- / repeat length measurement

The „Distance Measurement“ option makes it possible to perform a real-time measurement in each repeat. For this purpose, positions with a good contrast are defined as measuring points and the distances are measured continuously. Deviations that exceed or fall below the freely definable threshold values are shown as a defect and are documented.

In this way it is possible to check reliably changes in the repeat length, the web width and distortions due to the stretching of the web.

As necessary the measuring points can be arranged horizontally, vertically or diagonally. Intersecting measuring ranges are also possible.

LiveView

Web monitoring integrated in an inspection system is what the "LiveView" function offers. The user is shown every single camera image during the inspection - in real-time and within a separate window. In this way, changes in the image are directly visible on the monitor, even across the whole width of the web.

In LiveView you can zoom and navigate freely in order to evaluate every image position. In this way you can directly move to repeat defects or monitor the accuracy of register.

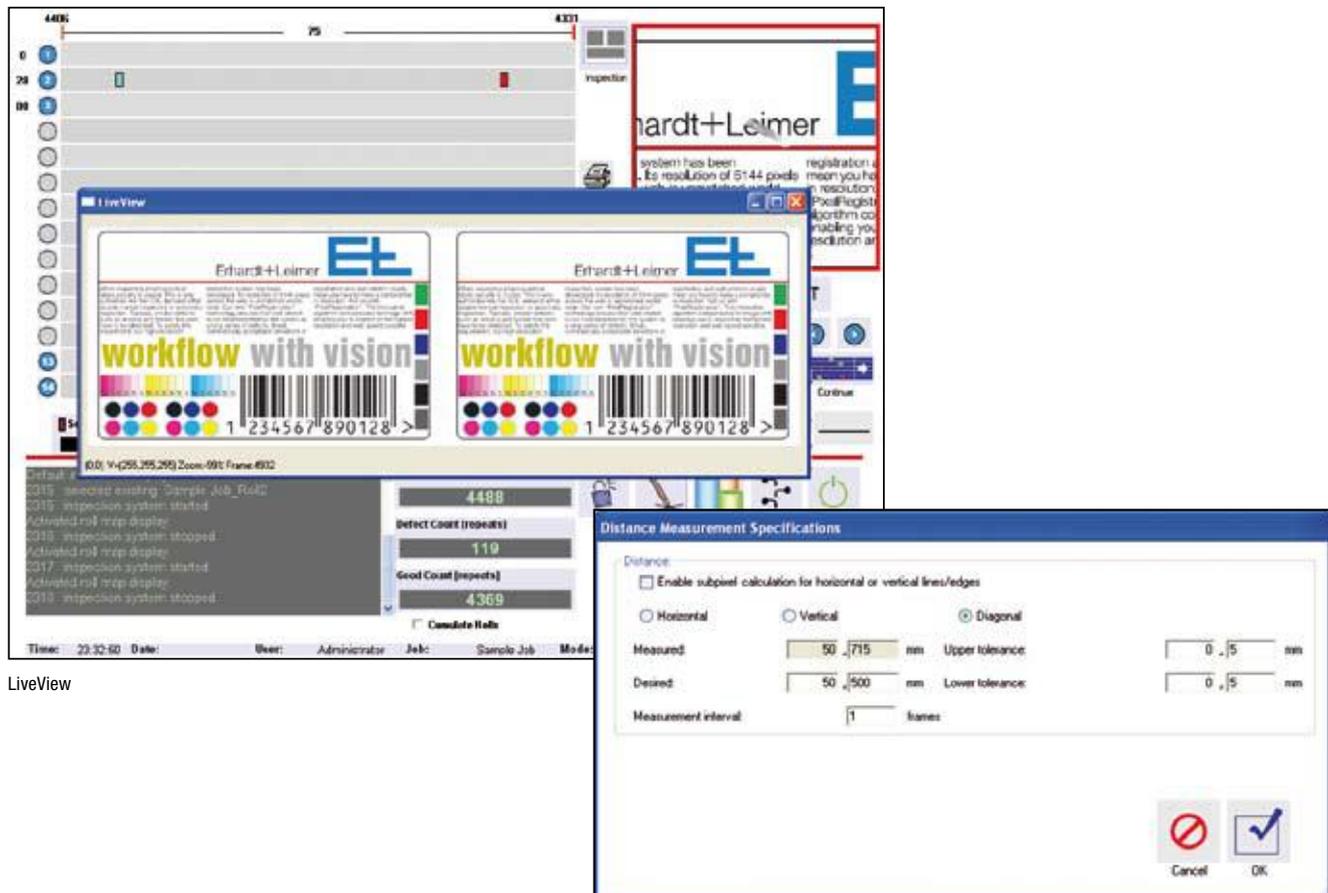
BDE database interface

Erhardt+Leimer provide the NYSCAN Syscon interface that can be connected to nearly any PDA database. Production-specific data is exchanged between the PDA database and the NYSCAN systems via "handshake" communication.

During setting-up and adjustment of the printing press the order data are directly sent from the PDA database to the NYSCAN systems where they are applied automatically for the definition of the job and roll reports.

Data such as inspection status, "good"- and "bad" counters, waste mode as well as all relevant inspection data are sent to the PDA database in definable intervals or at certain events.

These functions also guarantee that the roll reports can be identified unambiguously and loaded automatically at the QC station (quality control).



LiveView

Distance- / repeat length measurement

Pharmaceuticals/security applications

Special functions for the inspection of security and pharmaceutical production

As a supplement to the proven NYSCAN Web:Inspector systems, Erhardt+Leimer provides special functions for checking security and pharmaceutical production.

In principle all Web:Inspector systems are password-protected and each login is documented. The individual areas of the inspection software can also be secured with a password prompt if required.

To validate the correct function of the NYSCAN inspection system, a self-test has been integrated. Here specially inserted defects of varying size can be enabled and disabled for detection. The advantage of this function is the inspection of defined defect sizes.

Your advantages

- + Maximum reliability inspection for sensitive production
- + Documentation features for the inspection settings and results
- + Change-over option between incident light and transmitted light or both illuminations
- + Guaranteed upward and downward compatibility
- + Worldwide service and sales network via the E+L subsidiaries

Functions

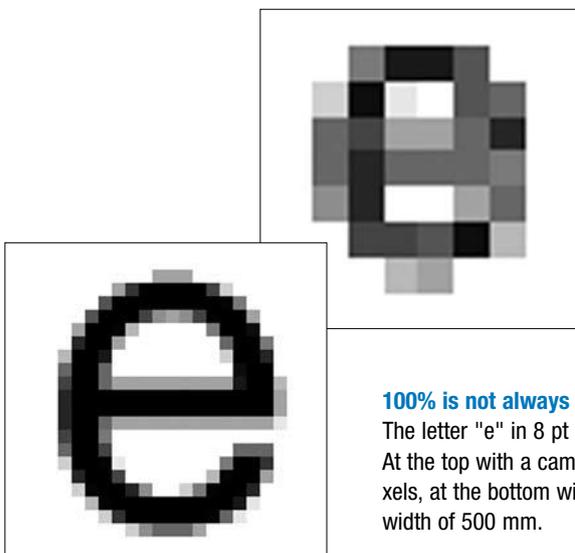
- + Special inspection algorithms for security and pharmaceutical production
- + High resolution grey scale and color line cameras
- + TubeLight or direct illumination (depending on the application)
- + Background illumination (transmitted light) optional
- + Can be used on printing presses or finishing machines
- + Continuous inspection of the entire width and length of the web
- + Digital roll reports for documentation of the defects detected and further processing on finishing machines
- + Size of the defects detected can be set individually
- + Defect output on the monitor and via acoustic / visual signal
- + Delta E output for color variations
- + Barcode modules for the inspection of barcodes
- + Distance measurement between freely definable points in the print image
- + Number detection for the inspection of sequential numbers
- + Modular design (upgrades and changes to the cameras can be made very easily)
- + Image:Inspector for PDF comparison optional
- + PDA interface
- + NYSCANsyscon network structure



Example: pharmaceutical labeling



Example: high quality packaging of cosmetics



100% is not always 100%

The letter "e" in 8 pt Helvetica:

At the top with a camera resolution of 2000 pixels, at the bottom with 6000 pixels, for a web width of 500 mm.

Customer-specific developments

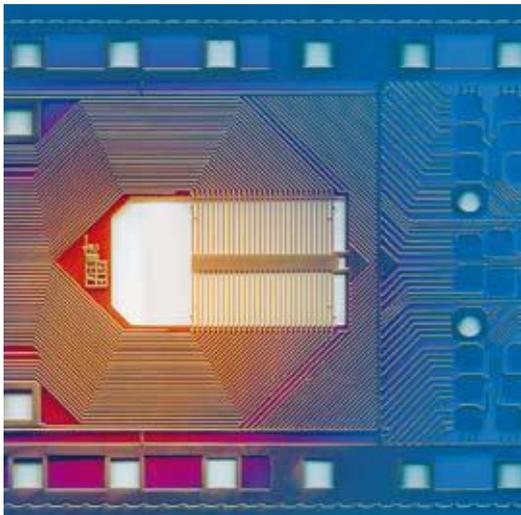
Evidence of the flexibility of E+L NYSCAN products

Along with numerous "standard applications", individual solutions to customer-specific requirements have also been developed and implemented by Erhardt+Leimer.

As in these cases the data and materials are mostly very sensitive, only an abstract of the applications can be mentioned here.

E+L NYSCAN inspection systems are used in the following applications:

- + Bank note paper for the inspection of watermarks, punching and the accuracy of register between the individual security features
- + Inspection of security strips in bank notes. Here several LCCD cameras connected in parallel inspect the quality of the security strips
- + Application of varnish and silicone for pharmaceutical labels. Transparent, partial areas of varnish and silicone are inspected for presence and accuracy of register
- + Print image inspection for pharmaceutical booklets
- + Inspection of holograms for security purposes
- + Checking of RFID antennae for fractures or poor contacts



Example: circuit



Example: printed bank note security

Roll:Scheduler – post-press function

Fully automatic defect positioning on finishing machines

The logical consequence of NYSCAN defect inspection on printing presses is the automatic positioning of the defects detected on the finishing machine.

Erhardt+Leimer has implemented this workflow with the system NYSCAN Roll:Scheduler. Here the roll report from the NYSCAN Web:Inspector system is used for automatic positioning. The related roll reports are loaded into the Roll:Scheduler software via a network connection. After the finishing machine is started, it runs to the first defect found and then automatically reduces the speed. The defective area is positioned on the splicing table or in front of the waste rewinder and can then be processed.

The advantage of this workflow solution from E+L is clear: by specific positioning of the defects the efficiency of the finishing machines is increased and the through-put of rolls increases significantly. Tedious visual inspection using a video system or stroboscopic lamp is no longer necessary and the operator sees immediately on the monitor which defect will be positioned next.

As part of a homogeneous workflow solution, for optimal results quality assurance is included between the printing press and finishing machine. This QA station edits, to the customer's requirements, the related production and defines which areas must be removed.

Here it is possible to mark larger areas as waste so that they can then be automatically ejected on the finishing machine.

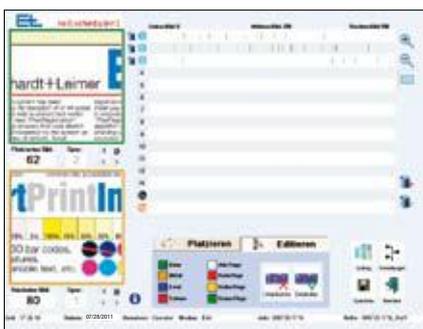
Functions

- + Automatic defect positioning on finishing machines
- + Increased roll through-put
- + Stop positions for individual defects and areas of waste
- + "Skip" function for ignoring irrelevant defects
- + Increase of efficiency, with reduced downtime
- + Automatic reading of the related roll report via barcode function
- + Reducing inappropriate operator workload
- + Separate quality control by QA station
- + NYSCANsyscon network structure
- + „CodeLess“ – Workflow (without inkjet code)

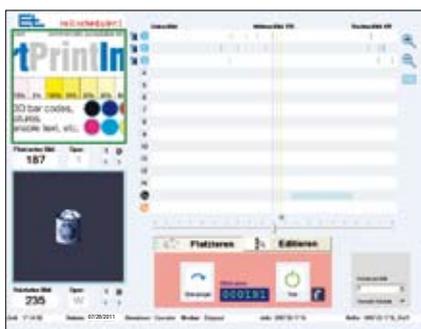


Finishing machine with high resolution Web:Inspector and accumulator for re-inspection

Roll:Scheduler user interface

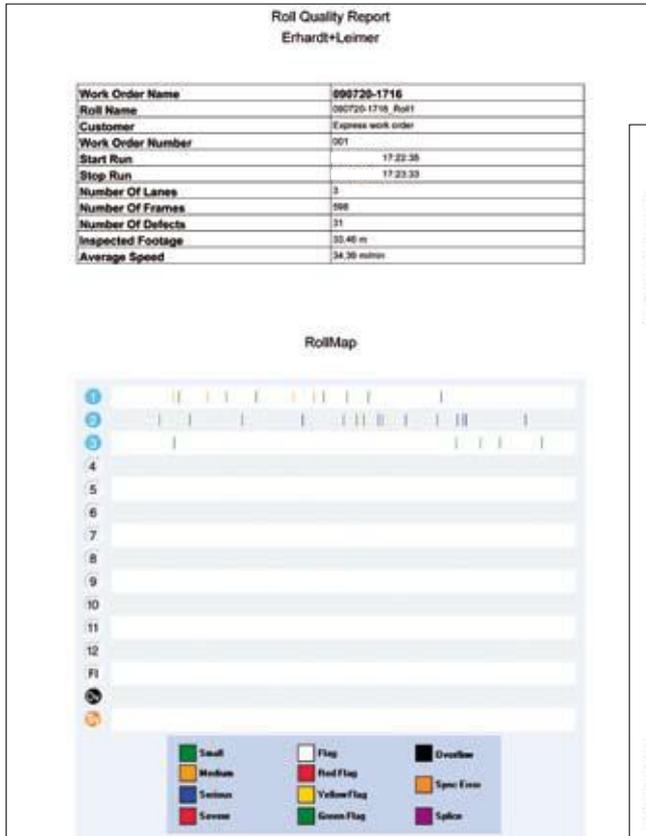


Main menu

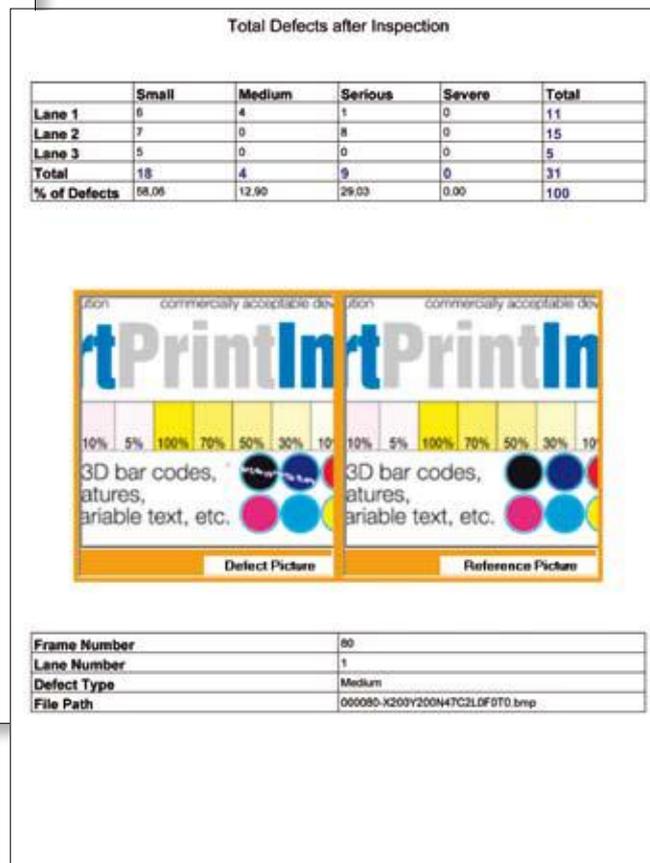


Inspection menu

Print Report Manager



Report page 1



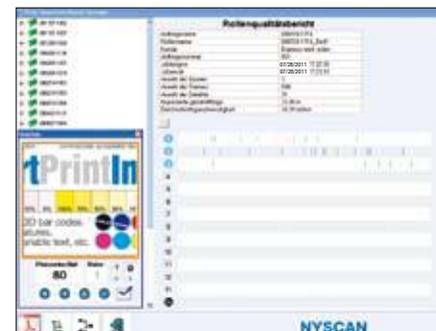
Report extract, defect image

Flexible tool for documentation management

Digital roll reports can be edited and saved in PDF format by using the Print Report Manager. The program allows to prepare customer-specific defect documentation that can be used both internally and externally for quality assurance purposes. The defect images that are to appear in the report can be selected using the defect image selection feature. The advantage is a clear distinction between setup defects and production defects.

Functions

- + Analysis of each defect image in the comparison reference to live image
- + Selection by defect sizes
- + Selection of individual defect images
- + Original report remains unchanged
- + Edited report is saved as separate document
- + Can be output as PDF document
- + Automated PDF report generation at roll end



Main menu



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